## REMARKS

Claims 1, 2 and 4 through 27 remain in this application. Claims 1 and 10 are amended. Claim 3 is canceled.

Claim Rejections Under 35 U.S.C. §101

In paragraph 3, the Office Action rejected claims 1 through 27 under 35 U.S.C. §101 stating that, "the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility." The Office Action states that "The claims claim that a topology map is generated, forwarded and updated. It is not clear what is 'useful' with regard to this." Applicants traverse and disagree that the invention does not have practical utility under 35 U.S.C. §101.

According to M.P.E.P §2106:

> "USPTO personnel should review the application to identify any asserted use. The applicant is in the best position to explain why an invention is believed useful. Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful."

And according to M.P.E.P. §2107.7:

> "Practical utility is a shorthand way of attributing "real-world" value to claimed subject matter. In other words, one skilled in the art can use a claimed discovery in a manner which provides some immediate benefit to the public.
> *Nelson v. Bowler*, 626 F.2d 853, 856, 206 USPQ 881, 883 (CCPA 1980).

Practical considerations require the Office to rely on the inventor's understanding of his or her invention in determining whether and in what regard an invention is believed to be "useful." Because of this, Office personnel should focus on and be receptive to assertions made by the applicant that an invention is "useful" for a particular reason."

In addition, the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" cited by the Office Action in paragraph 3 specifically states that:

> The applicant is in the best position to explain why an invention is believed useful. Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. See MPEP § 2107 for utility examination guidelines. An applicant may assert more than one utility and practical application, but only one is necessary.

Thus, the assertions of the applicant in the specification should be relied upon by the Office in determining whether and in what regard an invention is believed to be "useful."

The embodiments of the invention do have practical utility of wavelength discovery in a network element, as explained in paragraph 5 of the specification. The Examiner is perhaps confusing usefulness with benefits. Obviously, it is useful to have wavelength discovery in a network element. Wavelength discovery is useful because of its many benefits. Some of these benefits are described in paragraph 28 of providing a GUI that displays a graphical map of the optical network thus offering very detailed easy to analyze information about the network element. In addition, wavelength discovery helps determine which wavelengths are passed through a network element or are not associated with a network element or which are dropped or added at a network element as described in paragraph 28. Another particular benefit of the wavelength discovery embodiments of the present invention is that it avoids prior techniques of using handwritten logbooks that may not be readily accessible or out of data as explained at paragraph 4. Thus, the embodiments of the invention of wavelength discovery are clearly useful and meet the requirements of 35 U.S.C. §101.

Claim Rejections Under 35 U.S.C. §112, First Paragraph

The Office Action rejected claims 1 through 27 under 35 U.S.C. §112, first paragraph for several reasons. Applicants respectfully traverse this rejection and responds to each reason for the rejection below.

First, the Office Action states that "one skilled in the art clearly would not know how to use the claimed invention." According to M.P.E.P. 2164.04, "A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph." The specification clearly describes the process of using the invention in terms which correspond to those in the claims. For example, for one embodiment of claim 1, the method steps are shown in Figure 3 and clearly described in paragraph 30. A step by step approach to constructing a wavelength topology map is shown in Figure 1B. Figure 1B illustrates, *inter alia*, one embodiment of a time dependent tabular representation of creating a wavelength topology map by forwarding topology maps in first and second directions to adjacent network elements over a dedicated overhead wavelength channel, as described in paragraph 21 and 22. Thus a person of skill in the art without undue experimentation could use the wavelength discovery method for network elements in view of the descriptions in the specification.

Second, the Office Action states that, "In addition to not specifically describing how the "craft" retrieves the information. It is also unclear how this is accomplished. It is unclear how the craft retrieves this information and WHAT an NOC 228 is." According to 35 U.S.C. 112, first paragraph according to M.P.E.P. 2164.05(a), states, "The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). An NOC is described in claim 26 as a "Network Operations Center

(NOC)". A person of skill in the art would readily understand what an NOC is from the specification. Paragraph 26 states that, "The updated wavelength topology maps 152-160 may be employed by a NOC or craft, for example, to provide visibility into the entire system from a single network element." Figure 2 illustrates an NOC 228 in a box format as it is a well known entity in the art. Furthermore, a person of skill in the art would readily understand how a craft or craftsperson retrieves information from a network element using a terminal in view of the specification and knowledge in the art. As described in the specification in paragraph 4, "Many of the maintenance operations associated with the optical network involve field operation technicians, i.e., "craftpersons" or "crafts," interfacing with network elements via terminals." Also paragraph 27 states, "As illustrated [in Figure2], craft 226 is performing maintenance operations on NE4 208 while communicating with a NOC 228. As previously discussed, the craft 226 may access the NE4 208 via a terminal that provides necessary local operation and maintenance functionality. In particular, the terminal allows the craft 226 to activate/deactivate the network element and verify performance management by way of a set of functions that collect, process and display network traffic." Thus, a person of skill in the art would understand how to use a craft terminal to interface and access information from a network element on site.

Third, the Office Action states that the specification "does not teach specific means that generate a firs and second topology map or even specific means to forward and update the maps." Again, the specification clearly describes the process of using the invention in terms which correspond to those in the claims. For example, for one embodiment of claim 1, the method steps are shown in Figure 3 and clearly described in paragraph 30. A step by step approach to constructing a wavelength topology map is shown in Figure 1B. Figure 1B illustrates, *inter alia*, one embodiment of a time dependent tabular representation of creating a wavelength topology map by forwarding topology maps in first and second directions to adjacent network elements over a dedicated overhead wavelength channel, as described in paragraph 21 and 22. Paragraphs 24 and 25 explain in detail and provide specific examples of embodiments of how to determine a pass through wavelength. Thus, the specification clearly teaches a person of skill in the art how to make and use the invention without undue experimentation in accordance with 35 U.S.C. 112, first paragraph.

Claim Rejections Under 35 U.S.C. §112, Second Paragraph

The Office Action rejected claims 7-9, 15-17, 21-22 and 25-27 under 35 U.S.c. 112, second paragraph. The Office Action states, "See also M.P.E.P. 2173.05(q). It says that claim scope is indefinite if it merely recites a use without any active, positive steps delimiting how this use is actually practiced." Applicants respectfully traverse this rejection. These dependent claims are specifically supported by the specification as having a specific use. Claims 7 through 9 are supported in paragraphs 6, 30 and provides for utilizing said updated first and second wavelength topology maps. These claims are similar to the case of *Ex parte Porter*, 25 USPQ2d 1144 (Bd. Pat. App. & Inter. 1992) wherein the Board held that a claim which clearly recited the step of "utilizing" was not indefinite under 35 U.S.C. 112, second paragraph. (Claim was to "A method for unloading nonpacked, nonbridging and packed, bridging flowable particle catalyst and bead material from the opened end of a reactor tube which comprises utilizing the nozzle of claim 7."), as described in M.P.E.P. 2173.05(q).

Objection to the Drawings

The Office Action objected to the drawings under 37 C.F.R. 1.83(a). However, this rejection is traversed as the drawings clearly show every step of the claims as required. For example, Figure 3 shows each step in the method claim 1 cited by the Office Action as not shown in a drawing. Further, Figures 1B and 1C show an example of one embodiment of a means to generating the first topology maps and second topology maps and means for forwarding the maps and updating the maps.

Claim Rejections under 35 U.S.C. 103(a)

The Office Action rejected claims 1-6, 10-14, 18-20 and 23-24 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5781537 to Ramaswami et al (the Ramaswami reference) in view of US Application No. 2002/01781886 to Wu et al (the Wu reference). This rejection is traversed.

Independent Claim 1 and dependent claims 2 through 9

Independent claims 1 states generating a first wavelength topology map of wavelengths inserted in a first direction at each network element; generating a second wavelength topology map of wavelengths inserted in a second direction at each network element; forwarding said first wavelength topology maps in said first direction to adjacent network elements over a dedicated overhead wavelength channel; forwarding said second wavelength topology maps in said second direction to adjacent network elements over said dedicated overhead wavelength channel; responsive to messaging via said dedicated overhead wavelength channel, updating each of said first and second topology maps at each of said network elements; and wherein the step of updating each of said first and second topology maps further comprises determining passthrough wavelengths at each network element.

The Ramaswami reference fails to disclose updating each of said first and second topology maps at each of said network elements having an optical architecture. As shown in Figure 6A and 6B and described at lines 25 through 25 through 28, the nodes 101 – 105 include the optical routing node 201, the associated ATM switch 202 and the controller 203. The lightpath switch table is updated and kept by the controller 203 that is connected to the ATM switch 202, as described at column 5 lines 11 through 15. Thus, the Ramaswami reference does not disclose that the network element having an optical architecture updates topology maps.

Furthermore the Ramaswami reference fails to disclose "wherein the step of updating each of said first and second topology maps further comprises determining passthrough wavelengths at each network element." As explained above, the controller 203 connected to the ATM switch 202, only the controller knows the topology of the network and usage of wavelengths on the network links as described at column 7, lines 29 through 31 and column 8, lines 15 through 50 wherein the controller must set up the lightpaths from information on available wavelengths in the topology database. As such, topology information is not stored in the network element having an optical architecture but rather in the controller 203 attached to the ATM switch 202.

Finally, the Wu reference fails to add to the teachings of the Ramaswami reference that a network element with an optical architecture updates topology maps or determines passthrough

wavelengths at each network element. Thus, the combination of the Ramaswami reference and the Wu reference fail to teach or suggest the requirements of claim 1.

Independent Claim 10 and dependent claims 11 through 17

Claim 10 states means for generating a first wavelength topology map of wavelengths inserted in a first direction at each network element; means for generating a second wavelength topology map of wavelengths inserted in a second direction at each network element; means for only forwarding said first wavelength topology maps in said first direction to adjacent network elements over a dedicated overhead wavelength channel; means for only forwarding said second wavelength topology maps in said second direction to adjacent network elements over said dedicated overhead wavelength channel; and means responsive to messaging via said dedicated overhead wavelength channel for updating each of said first and second topology maps at each of said network elements.

As explained in paragraph 19 of the present specification, in one embodiment of the invention, wavelength topology maps generated by a network element are only forwarded by a network element to adjacent network elements and are not flooded or broadcast to the entire network any further. Furthermore, the topology maps forwarded in a first direction to adjacent network elements only include wavelengths inserted in that first direction.

The Ramaswami reference teaches away from this embodiment of the invention. The Ramaswami reference teaches a topological update procedure that broadcasts topology information of a node to all other nodes by flooding or on a spanning tree. Timestamps are used to determine ordering of the update messages, as explained at column 7, lines 36 through 42.

Furthermore, the Ramaswami reference fails to disclose updating each of said first and second topology maps at each of said network elements having an optical architecture. As shown in Figure 6A and 6B and described at lines 25 through 25 through 28, the nodes 101 – 105 include the optical routing node 201, the associated ATM switch 202 and the controller 203. The lightpath switch table is updated and kept by the controller 203 that is connected to the ATM switch 202, as described at column 5 lines 11 through 15. Thus, the Ramaswami reference does not disclose that the network element having an optical architecture updates topology maps.

Finally, the Wu reference fails to add to the teachings of the Ramaswami reference that a wavelength topology maps generated by a network element are only forwarded by a network element to adjacent network elements or that the network element with optical architectures are updating topology maps. Thus, the combination of the Ramaswami reference and the Wu reference fail to teach or suggest the requirements of claim 10.

Independent claim 18 and dependent claims 19 through 27

Independent claim 18 states, a first network element associated with said optical network, said first network element being operable to generate a wavelength topology map having a first map portion and a second map portion, wherein said first map portion associated with said first network element is specific to a first direction of said optical network and said second map portion associated with said first network element is specific to a second direction of said optical network; a second network element associated with said optical network, said second network element being operable to generate a wavelength topology map having a first map portion and a second map portion, wherein said first map portion associated with said second network element is specific to said first direction of said optical network and said second map portion associated with said network element is specific to said second direction of said optical network; and a dedicated overhead wavelength channel connecting said first network element to said second network element, said first network element being operable to transmit said first map portion to said second network element over said dedicated overhead wavelength channel, wherein said second network element utilizes said first map portion associated with said first network element to update said first map portion associated with said second network element.

As explained in paragraph 19 of the present specification, in one embodiment of the invention, the network elements generate two wavelength topology map portions, a first portion specific to a first direction and sent to adjacent network elements in that direction and a second portion specific to a second direction and only sent to adjacent network element in that second direction.

The Ramaswami reference teaches away from this embodiment of the invention. The Ramaswami reference teaches a topological update procedure that broadcasts topology information of a node to all other nodes by flooding or on a spanning tree. Timestamps are used

to determine ordering of the update messages, as explained at column 7, lines 36 through 42. There is no description in the Ramaswami reference of specific portions of the topological information that are only transmitted in specific directions.

The Wu reference fails to add to the teachings of the Ramaswami reference that a network element generates two wavelength topology map portions, a first portion specific to a first direction and sent to adjacent network elements in that direction and a second portion specific to a second direction and only sent to adjacent network element in that second direction or that the network elements with optical architectures update topological maps. Thus, the combination of the Ramaswami reference and the Wu reference fail to teach or suggest the requirements of claim 18.

## CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,
ALCATEL LUCENT

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/Jessica Smith/

Jessica W. Smith
Reg. No. 39,884

Alcatel Lucent
Intellectual Property & Standards
3400 W. Plano Parkway, M/S LEGL2
Plano, TX 75075
Phone: (972) 477-9109
Fax: (972) 477-9328